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14. ABSTRACT One of the greatest threats to Sea Power 21's vision of assured access and Joint Vision 2020's principle of dominant maneuver is the continuing improvement of diesel submarine technology and operations. Steady proliferation of SSK technology and rising production of diesel submarines has empowered smaller navies of weaker nations with a potent tool in the war for sea control or sea denial. US ASW forces today are ill prepared to deal with this improving threat. ASW continues to be mired in Cold War assumptions. Programs to improve ASW wrongly focus on technology and platform -sensor performance instead of overall force employment and operational level concepts. This paper sets out to demonstrate and validate the need for a joint littoral ASW doctrine which would enable forces to rise above the technology centric thinking of ASW which remains entrenched at the tactical level. Having a written doctrine for ASW forces would give impetus to the establishment of a joint ASW center for excellence and guide forces in the ability to synchronize large scale ASW operations between several services.					
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THE NEED FOR JOINT LITTORAL ASW DOCTRINE

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.



Signature: _____

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*Joint Doctrine: Fundamental principles that guide the employment of forces of two or more services in coordinated action toward a common objective.*¹

Introduction

Since its development over 100 years ago, the submarine has continued to evolve into one of the most effective implements in the conduct of modern warfare. Its presence, and even its potential presence, can shape the battlespace as no other single element of any armed force.² Indeed, with its ability to conduct sea denial operations, maritime fleet interdiction, insertion of special forces, intelligence and reconnaissance, covert mining, and recently land attack, the submarine is fast becoming our enemies' most economical means of affecting the joint area of operations.³

The impact of the modern diesel electric submarine has not been lost on those who define the future of US military force structure and joint operations. The recently published Concept for Future Joint Operations highlights at the operational level the threat of diesel electric submarines as well as newer air-independent propulsion submarines.⁴ Yet, with all the attention given in vision statements, not one word of Anti-Submarine Warfare (ASW) doctrine has been published or endorsed. To achieve and preserve subsurface maritime control and superiority, our military needs to task, develop, and publish joint littoral ASW doctrine.

To facilitate the verification of the need for joint littoral ASW doctrine, the question will be examined in three logically ordered steps:

- First, why is there a need for *any* ASW doctrine,
- Second, why focus ASW doctrine in the *littoral*,
- And lastly, why does ASW doctrine need to be *joint*.

In examining each of these questions, it will be helpful to continually refer back to the definition of joint doctrine. The need for joint littoral ASW doctrine should be centered about the need to *guide the employment of forces*. Its necessity should be validated by the need to *direct the efforts of more than one service*. The need for joint littoral ASW doctrine should be demonstrated as a needed framework to *coordinate action*. And finally, the need for the doctrine should be focused on the need to define *a common objective*.

The need for joint littoral ASW doctrine is strictly limited to the operational level of warfare. Although currently inadequate,⁵ the actions and methods which would implement the conduct of joint littoral ASW operations at the tactical level are not within the scope of this paper. Nevertheless, the discussion of multi-service capabilities at the tactical level will sometimes be required in order to highlight the advantages of a joint vice single service doctrine.

The Need for *Any* ASW Doctrine

...but what is doctrine anyway? I believe it is a set of procedures, established through experience, that provides a guide. But doctrine should be flexible, never rigid, for circumstances often dictate complete departure.
- RADM (ret) Richard H. O'Kane⁶

The US military and the US Navy in particular have historically been wary of establishing formal joint doctrine. In 1986, the Department of Defense (DOD) Reorganization Act attempted to reverse this trend through legislation that required the military to establish joint doctrine.⁷ In response, a separate Joint Doctrine Division was established and subsequently the Navy formally stood up the Navy Doctrine Command (NDC) (later the Navy Warfare Development Center [NWDC]). Nevertheless, even with these organizations established, ASW doctrine has failed to materialize. Although military

leaders acknowledge a need to improve ASW,⁸ the US ASW community has failed to make publishing doctrine to combat submarines a priority.

Guide the Employment of Forces

Operation Enduring Freedom in Afghanistan demonstrated that a lighter and more mobile navy-marine force could conduct radically new operations centered on precision munitions, persistent air support, and dominant maneuver. These current capabilities of a transformed force ready to fight a myriad of new contingencies on short notice reflect current needs. Arguably, without doctrine to focus concepts based on today's capabilities, these forces would not have been ready.

Luckily, carrier based strike and amphibious forces had previously tested and thought through the concepts necessary for a new precision munitions intensive war like Afghanistan. In the area of ASW, conceptual readiness and flexibility is far worse. The lack of operational level planning indicative of Cold War ASW has remained the guidepost of today's operations. Due to lack of doctrine, plans continue to be based not on concepts founded in operational art, but rather on haphazard and disjointed tactical searches conducted by loosely coordinated forces.⁹ ASW plans are still formulated by Carrier Group (CARGRU) staffs without overlying warfare doctrine and remain the standard due to entrenched Cold War assumptions no longer valid in today's ASW battlespace. During the Cold War, threats were known and operational plans were developed during a regimented pre-deployment work up. ASW up through the 1980's remained compartmentalized through much of the navy and was conducted using small independent submarine-only operations. Additional precepts still held today include assumptions that the submarine threat's area of operations will be mature and that deployed forces will have time to plan and train together prior to arriving in theater.

Few if any of the above assumptions apply to current ASW threats. Current ASW will most certainly be coordinated¹⁰ and may likely involve assets surged from a non-deployed status.¹¹ The area of operations may be new and the threat not previously engaged.¹² ASW may require the discrimination of multiple targets in the littoral and employ live ordnance. Finally, the threat may not be able to be dislocated or neutralized by merely stringing together several independent search and track missions, but rather will require synchronized operations conducted over longer periods of time and varying sizes and shapes of space.¹³

Today's reality is that *all* ASW forces (CVBG, independent sub, land-based air, non-naval) need to be ready *today* to combat different types of submarine threats (diesel-electric, nuclear, mini sub) in a potentially immature and hostile theater of operations. Current ASW guidance continues to merely focus on the mechanics required at the tactical level and holds to the Cold War assumption that an all navy force will be used.¹⁴ To give all available forces the flexibility to succeed, a common reference point in the form of doctrine is required for operational level planning.

Coordinate Action

“Good ideas are not confined to the world of science and technology”¹⁵

“Doctrine is the authoritative statement of the best way to do the business of the military profession. It drives the other elements, education and training.”¹⁶ This statement from Joint Vision 2020 is undeniable, but the converse is certainly true as well, that is, without doctrine, education and training will be unfocused and lack authoritative direction. Nowhere today is this more evident than the area of ASW. Over the last fifty years, the continuing lack of doctrine has sustained a warfare development system solely led by technology and tactical development rather than operational warfare concepts. The long term

focus on developing warfare concepts driven by technology has undermined ASW effectiveness. Highlighting this deficiency is the lack of an all inclusive (air, sub, surface) ASW training and development center and the ineffective process of conceptual ASW analysis. Both of which, if corrected, would help in *coordinating the actions* of fleet forces.

Lack of All Inclusive Training: Due to its technological focus, ASW training and development continues to be parochially focused amongst different branches of the Navy.¹⁷ Without doctrine as a unifying force, no formal training and development center has been created to incorporate all facets of ASW force structure and capabilities. Consequently, ASW remains focused at the tactical level. The endorsement of formal doctrine would give impetus to staffing one single center for ASW forces in which training and testing would exercise the broader operational concepts necessary for success.¹⁸

Ineffective Operational Level Conceptual Analysis: Although NWDC, through the fleet battle experiment (FBE) program, has tested some ASW concepts at the operational level, these exercises are limited in developing an effective force due to their narrow exposure to fleet forces and the lack of doctrinal concepts as a deliverable output. Indeed, FBE conclusions from ASW testing remain focused on technology at the tactical level.¹⁹ FBE's may be fueled by concepts, but without published doctrine as an end product, these concepts remain merely good ideas rather than a framework for fleet operational level planning and execution. Finally, without current doctrine, concepts can not be brought to the fleet for real world application nor can codified concepts be further evaluated and revised by subsequent FBE's.

Operational art and theater level planning are not rooted in technology. Technology centric warfare development by its nature will always drive concepts and future thinking

down to the tactical level. There is no doubt that technology has a place in providing input to further concepts, but today's ASW forces need to *coordinate action* at a higher level. ASW doctrinal development would provide the foundation and impetus for a truly joint and coordinated training infrastructure. Sea Power 21's sea trial initiative is not just intended to be a real world proving ground for systems, but is intended to test broad warfighting concepts as well.²⁰ To do this, US ASW forces must integrate top down doctrine throughout the development cycle."²¹

Common Objective – Facilitating Allied Interoperability

The objective, at all levels of warfare, remains fundamental to determining the courses of action for military forces whether during operations other than war (OOTW) or war itself. At the component commander level, ASW objectives continue to be defined and trained to only at the tactical level. Although, as discussed earlier, this deficiency has hampered development of successful ASW practices in the US, this doctrinal gap has had an even more detrimental influence on the effective use of multi-national ASW forces.

Joint Vision 2010 states succinctly that "although our Armed Forces will maintain decisive in unilateral strength, we expect to work in concert with allied and coalition forces in nearly all of our future operations, and increasingly, our procedures, programs, and *planning*²² must recognize this reality".²³ With respect to ASW, this proposed interoperability brings to the table many capabilities which would greatly improve ASW effectiveness now. Nevertheless, without doctrine, these improvements can not reach their full potential.

Although the transatlantic gap in military technology and capability is widening,²⁴ the opposite trend is prevailing in ASW. Indeed, throughout Europe, there is a surge in

underwater warfare construction as navies seek to replace obsolescent units with new construction suitable to the 21st century.²⁵ These advances could greatly assist in filling gaps in US capabilities. Such allied capability enhancements might include:

- Effective shallow water torpedoes,
- Conducting offensive diesel sub warfare in waters too shallow for US SSN's,
- Offensive mining to deny space to threat submarines,
- SOF insertion to destroy enemy submarines in port,
- Commercial shipping interdiction.

In addition to gap fills, allied submarines could relieve US SSN's of sea control duties to allow for the conduct of land attack (currently a capability limited to US and UK SSN's).

Again, the lack of ASW doctrine greatly impedes this vision of interoperability on two fronts. First, how can allied nations effectively plan, fund, build, and train forces to fight alongside US forces if they don't know what they will be expected to do? Without doctrine, ASW concepts and overall *common ASW objectives* remain undefined at the operational level. Secondly, due to the US aversion to diesel construction, allied diesel forces remain the only means to effectively train by acting as opposing forces (OPFOR) during ASW exercises.²⁶ Without knowing how we intend to fight, we deny ourselves the invaluable input and "reality check" of the allied diesel submarine community. By proposing ASW doctrine, allies would better be able as OPFOR to assist in validating (or invalidating) our doctrine as well as assisting in revising plans to better neutralize enemy diesel submarines in future conflict. Offering our allies publications which merely provide procedures for coordination is denying them the chance to provide insightful input with respect to anti-diesel submarine warfare, an area which they as diesel submarine sailors are intimately more familiar.²⁷

In the post-Cold War era, no arm of the military will be able to survive without doctrine. ASW is no exception.

- Surging (*Guide the Employment of Forces*): Standing naval and air expeditionary forces, no matter at what point in deployment-readiness cycle, need to be ready within days to be employed as a unified force against a variety of submarine threats. The Joint Task Force Commander (CJTF) and Joint Maritime Component Commander (JMCC) will not have the luxury of a three month work up to assemble a team and devise an operational plan for the localization, neutralization, or destruction of the submarine threat. Some common reference will be required by both the operational planners and those tasked with executing the plan so that forces can be called upon on short notice.

- Funding-Development-Training (*Coordinate Action*): The need to establish assured access as envisioned in Sea Power 21²⁸ and to operate throughout the battlespace using dominant maneuver as detailed in Joint Vision 2010²⁹ can not happen without building the right force. Without ASW doctrine, the correct force for the future will continue to be defined by technology rather than vision.

- Allied Interoperability (*Common Objective*): The National Military Strategy focused through joint doctrine has set forth principles which assist in defining common objectives at the operational level for the CJTF. At the next level down, there remains a void where ASW doctrine would set the principles by which future undersea objectives would be defined and allow for effective interoperability of allied forces.

The previous discussions have argued that an ASW doctrine is needed. The next logical step is to answer why this ASW doctrine should be joint. This validation of needed jointness can be divided into two parts. First, briefly demonstrate why this ASW doctrine

should be centered on requirements to conduct ASW operations in the littoral. Secondly, discuss the interlock between this littoral necessity and jointness.

Why Focus ASW Doctrine in the Littoral

*ASW is not an end in itself. It is a means through which we
are able to conduct the missions required of us in this new world.*
- VADM Richard Owens³⁰

Much has been written over the last ten years of the Navy's shift from blue water operations to the conduct of warfare in the littoral. The basis for the shift is rooted in a multitude of complex world events as diverse as the collapse of the Soviet Union to the emergence of global connectivity of trade and communications. The effect of this shift on military operations has been extremely significant, however, with respect to the need to focus ASW doctrine in the littoral, the discussion can be bound by examining three simple statements of fact: the National Military Strategy has directed operations in the littoral, US Navy littoral vision does not result in a useable ASW end product, and most importantly, at the operational level, the littoral is where the current ASW threat retains disproportionate leverage.

The Current Military Vision – Since the publication of ...Forward from the Sea in 1992, successive military vision statements have introduced and then continued to refine the importance of littoral warfare. In 1993, Forward...from the Sea articulated through examples ranging from Haiti to Bosnia the importance of regional warfare. In more recent publications, two themes directly related to the strength of our potential enemy's submarine fleet have been emphasized: assured access and dominant maneuver. Sea Power 21 goes so far as to specifically state the importance of the need to “assure access from the sea for joint forces in the face of surface threats, quiet submarines, and mines.”³¹ Obviously, our needed ASW

doctrine should set out the broad concepts of how our ASW forces intend to facilitate dominant maneuver in this important littoral region.

Sea Shield, Sea Trial, ASW, and the Missing Link – As is the case with most current visions, Sea Shield highlights the need for littoral ASW doctrine by concentrating on future technology such as Littoral Combat Ship (LCS) without following through on the need for published conceptual guidance as an end product. Indeed, Sea Shield’s vision goes only half-way by calling for a “Vanguard ASW Force” deploying to the Asian Pacific region to refine operational concepts and TTP.³² Such a “Sea Trial” represents a positive start, but the cycle of technology from concept to operational employment can not be closed unless the deployment of this transitional force results in a forward littoral ASW doctrine. Without doctrine as an end product, the operational concepts developed through such a deployment are destined to ‘die on the vine.’

Disproportionate Leverage in the Littoral – In today’s battlespace, the modern diesel-electric submarine has evolved into the preeminent littoral warfare weapon.³³ This emergence is so significant that the need to improve littoral ASW is cited in several of the most recent military vision statements. The lethality and leverage of the diesel-electric submarine is accentuated in the littoral for several reasons, the most significant of which include its ability to effect Time-Force-Space operational factors, the capability of just one submarine to effect a large percentage of force flow and sustainment, and the ability to conduct sea denial operations with very limited manpower and material impact on enemy forces as a whole.

Operational Factors:

Time: The ability to conduct operations unsupported for several weeks, especially in narrow seas, allows for exaggerated dwell time within combat striking range of the enemy far greater than any other threat platform.³⁴

Force: Capability to destroy capital ships and pre-positioned support vessels carrying a high density of combat power and logistics which must transit the littoral give the crew of one enemy submarine disproportionate combat power projection using up minimal manpower and material.³⁵ {Consider for example the effect of one Nimitz class carrier sunk by an Iranian Kilo submarine patrolling the Straits of Hormuz}.

Space: The ability to redraw sea lines of communication (SLOC's) through denial of unrestricted choke point transit can greatly affect force flow to regional conflict areas. Additionally, the neutralization of the submarine threat in order to reopen these SLOC's draws a significant amount of coalition assets from other combat missions.³⁶ {Consider the effect of one MPS ship sunk by an Indonesian type 209 submarine while exiting the Straits of Malacca}.

The ability of the diesel-electric submarine patrolling the littoral to disproportionately affect sustainment, force flow, and all three operational factors make it one of a handful of threats in which a single unit's presence can affect the battlespace at the theater-operational level. Yet, ASW remains void of any doctrine which addresses warfighting concepts beyond the tactical level.

An analysis of the need to focus modern ASW doctrine in the littoral could be developed in much more detail, but such extensive discussion is not required to further the validation of the thesis contained in this paper. In simple terms, it is merely important to establish the need for littoral focus, not analyze it. Therefore, it is only important to recognize

that current National Military Strategy requires forward presence to conduct operations within the confines of diverse regional areas of interest. Since forces must transit, operate, and be sustained in these forward littoral areas, and because the submarine threat's potential is so disproportionate in these areas, the need for US ASW doctrine to focus in the littoral can inherently be derived.

Why ASW Doctrine Needs to be Joint

*I have a message for all the Navy people in this room and
I recommend you listen...the future is joint.
- ADM Vern Clark³⁷*

Having demonstrated the need for ASW doctrine and consequently showing why ASW doctrine must focus on littoral operations, the final step in validating the need for a *joint* littoral ASW doctrine is to demonstrate this need for jointness. This facet of ASW operations may not seem intuitive. Indeed, the focus on ASW as a “navy-only” problem and the habitual reliance on undersea warfare technology continues to blur the need for the ASW battle to be fought at the joint operational level. The relevance of jointness in ASW follows from two distinct facts: other services and coalition forces can and must contribute to successful ASW and the need for jointness is naturally inherent due to the geographic limitations and principles of littoral warfare.

Directing the Efforts of Two or More Services

The underlying question here is simple. Besides the Navy, can other services provide credible ASW forces? The answers can be found in reading other service doctrine in addition to examining other service's capabilities.

The US Air Force (USAF) and ASW – An examination of current USAF operations would lead most warfare scholars to dismiss USAF ASW out of hand; however, one need go

no further than that service's own doctrine to see immense potential. Indeed, the Air Force has filled a gap in joint doctrine with their publication of Air Force Countersea Operations Doctrine. In it, the Air Force details the need to maintain the force structure and training to project a viable countersea strike capability which can contribute to the joint effort in maintaining and exercising sea control. These force capabilities include “destroying or neutralizing enemy ships, submarines, aircraft or mines” as well as “destroying or neutralizing land based infrastructure that supports enemy sea control forces”.³⁸

It should be noted here that counter-ship operations by US land based air forces has become largely a forgotten role.³⁹ However, in light of today's direction to transform to a lighter more joint force, would it not be wise to revisit this lost art? Considering that a significant number of detections, even in today's high tech world, come from visual detection, it would appear that modifications to tanker flight patterns and bomber approach routes would synthesize ASW visual search efforts at minimal cost. Finally, consider the vulnerability to submarines from air power. There is currently no submarine based air defense stand-off weapon. From this, it only seems logical that the air force is not only doctrinally ready to conduct ASW operations, but could do so without significant threat to force attrition.

Army/Marines/Special Forces and ASW – As with the USAF, the viability and applicability of land forces to ASW may not be intuitive, however, it is no less vital a force in effective ASW as the US SSN. Again, the problem in validating the joint necessity continues to be the adherence to ASW as a sea service only problem. Whether it is the gaining or maintaining of sea control, such artificial barriers do not apply. Because of the “interface”

(land, sea, air) inherent to the littoral, in operational terms, it is increasingly a joint environment.⁴⁰

Just as the diesel submarine is highly susceptible to air attack while at sea, it is even more vulnerable while tied up in port. It is here where the submarine's primary advantage of stealth is nullified. It is for this reason that Special Forces can contribute so much to waging an effective ASW operation. Special Forces have a great potential for attacking enemy ships in their bases on narrow seas.⁴¹ Although this capability is not disputed, its usage is not clearly defined in the context of US ASW operations as a whole. That is, the synchronization and sequencing of such an attack is not part of an overall ASW plan, but is merely viewed as a small tactical fire. Additionally, assuming this mission will be conducted solely by Navy SEALs or other forces projected from the sea is shortsighted and fails again to employ the principle of economy of force. Prior to overt hostilities, Special Forces from other services or agencies may already have established a viable presence within the enemy's rear area.⁴² These forces may be able to provide valuable time sensitive intelligence as to movement of the enemy submarine fleet not available through space based sensors. Using Special Forces as an integrated force rather than merely a raiding party, the Joint Force Commander would be able to time an inport attack to synchronize with larger operations. In this role, Special Forces from the Army or Marines have a place in US ASW force planning and should be incorporated into an overall ASW doctrinal concept.

Coordinating Action

To effectively employ joint forces in the overall ASW battle, there will be an underlying need for these forces to share information, not only at the tactical, but also at the operational level. This aspect of ASW has drawn a significant amount of research and

development in what has come to be known as “Net Centric ASW”.⁴³ There is no doubt that information sharing amongst naval forces is vital, but again it is only a part of the total picture. To effectively leverage joint ASW capabilities, USAF and USA/USMC/Special Forces will also need to be able to “plug in” to this ASW net.

In a truly joint force, Net Centrics for the Army and Air Force would be more than an information source; it would be a means to promulgate their valuable input as well. As demonstrated in Afghanistan, the dwell time of air force assets such as tankers and AWACS can provide joint forces vital flexibility. Taking this capability of persistence one step further, AWACS aircraft could provide the JFMCC a node within the ASW Force Net. Such contributions might include coordination of ASW air search by all land and sea based reconnaissance aircraft as well as a relay point for Special Forces report back on inport submarine activity and sortie. Through joint ASW doctrine, a culture of complete force involvement can supplant a parochial view of ASW Net Centrics and more adequately leverage the valuable potential of non-naval forces. This type of information warfare would greatly assist in elevating ASW to the operational level.

Littoral Warfare Equals Joint Warfare

*In a narrow sea, the struggle for sea control
requires the closest cooperation among all services.*⁴⁴

Up to this point, the need for ASW jointness has been demonstrated by analysis of force capability, but looking at the “playing field” and not merely the “players” gives another insight into the potential for ASW jointness. That is, the physical nature of the littoral space makes jointness a natural enabler for ASW success.

Our National Military Strategy calls for forces to operate forward in the littoral to combat regional threats. However, the littoral area has for too long been considered two

distinct areas, that of a seaward area and that of a landward area.⁴⁵ The range and lethality of current sea-based and land-based systems tends to oversimplify the complexities of the sea-air-land interface in modern warfare.⁴⁶ It is this tendency to neatly block off areas of interest within the littoral which incorrectly focuses ASW as a maritime-only problem. Operations in coastal regions where land, sea, and air converge demand closely integrating capabilities. “Although operations in the littoral will retain a naval flair, they now depend more on the ability to outmaneuver opponents at sea, in the air, and ashore; in other words, to wage effective joint warfare.”⁴⁷

Conclusions

Today’s battlespace will be mastered through the execution of operations which gain and maintain assured access and dominant maneuver. The modern diesel-electric submarine provides US enemies a valuable weapon in denial of this objective. Throughout this paper, one can now identify the lack of joint littoral ASW doctrine as a significant obstacle to neutralizing, destroying, or dislocating this threat.

- ASW doctrine is needed today to act as both an impetus for change and an overall guide to ASW advancement. Its publishing will raise the ASW problem from the tactical to operational level by shifting focus from technology to a higher level of synchronized and sequenced employment of forces. Having a written concept of how to guide the employment of force will act as an enabler in achieving true interoperability with allied diesel submarine forces and facilitate their involvement in improving the process. Additionally, it will provide flexibility in crisis response by offering the JFMCC a starting point to begin planning for operations immediately.

- This new doctrine must be joint and focused on littoral operations. The littoral is where enemy submarines maintain the most disproportionate leverage to affect coalition planning, force flow, and sustainment. Other non-naval forces, when employed in the overall scheme, have many capabilities to offer in gaining needed undersea supremacy.

Recommendations

The first step in solving the endemic problems in the US ASW community is to task the joint staff with drafting a joint littoral ASW doctrine. Additionally:

- Establish a *joint* ASW center of excellence involving all services which would coordinate tactical development, operational planning, acquisition, and subsequently evaluate US ASW doctrine for revision.
- Conduct FBE's which focus on ASW at the operational level and follow up war games with joint and coalition force Sea Trials to evaluate US ASW doctrine for flexibility and suitability to fight diverse submarine threats in varying littoral regions.
- Involve US allies from other diesel submarine communities in the formation and evaluation of joint littoral ASW doctrine.
- Use joint littoral ASW doctrine as a conduit to stimulate non-naval forces in contributing to the fight for ASW supremacy.

With a broad operational level concept document in hand, the goals of assured access and dominant maneuver outlined in Sea Power 21 and Joint Vision 2020 can be realized. By publishing a joint littoral ASW doctrine and implementing the above recommendations, US ASW forces can be effectively *guided in employment* using *multiple services* while *coordinating actions* to achieve the *common objective*.

ENDNOTES

¹ U.S. Joint Chiefs of Staff, Department of Defense Dictionary of Military and Associated Terms (Joint Pub 1-02). (Washington DC: January 2003), 238.

² Sandy Woodward, One Hundred Days: The Memoirs of the Falklands Battle Group Commander. (Annapolis, MD: Naval Institute Press, 1992), 99.

³ John Morgan, “Anti-Submarine Warfare, A Phoenix for the Future”. Lkd. Anti-Submarine Warfare at “Chinfo News Service Homepage”, <http://www.chinfo.navy.mil/navpalib/cno/n87/usw/autumn98/anti.htm>. [9 May 2003], 1.

⁴ U.S. Joint Chiefs of Staff, Concept for Future Joint Operations. (Washington DC: May 1997), 15.

⁵ J. Benedict, “ASW Paradigm / Changing Paradigm for ASW – The Threat is Technology,” June 2002, The Way Ahead in ASW - JHU/APL CD-ROM, Newport, RI: June 2002, ppt-53.

⁶ Richard H. O’Kane, Clear The Bridge. (Chicago, IL: Rand McNally and Company, August, 1977), 67.

⁷ U.S. Joint Chiefs of Staff, Joint Doctrine Capstone and Keystone Primer. (Washington DC: September 2001), 91.

⁸ Jason Ma, “Doran: Advances in Diesel Sub Technology Require ASW Emphasis,” InsideDefense.com, 20 January 2003.

⁹ J. Benedict, “ASW Paradigm / Changing Paradigm for ASW – The Threat is Technology,” June 2002, The Way Ahead in ASW - JHU/APL CD-ROM, Newport, RI: June 2002, ppt-137.

¹⁰ Gordon England, “Naval Transformation Roadmap, Power and Access...From the Sea, Sea Strike – Sea Shield – Sea Basing.” JMO Course Selected Reading, U.S. Naval War College, Newport, RI, 19.

¹¹ The extensive submarine commitment required by the US during operation Iraqi Freedom required SSN’s to be deployed from an inter-deployment training cycle status. Additionally, many surface ships and amphibious forces were placed into deployed status prior to completing pre-overseas movement work-up and full certification.

¹² For example, during embargo enforcement operations in the Former Yugoslavia (FRY)(1991-1992), many US SSN’s were required to provide ASW security. This was the first time US submarines had operated in the Adriatic Sea.

¹³ Malina Brown, “Fleet Forces Command Offers New Plan for Anti-Submarine Warfare,” InsideDefense.com, 28 April 2003.

¹⁴ Due to the absence of doctrine, the only planning guidance available to fleet forces consist of Naval Warfare Publications (NWP) focused solely on TTP. These include the Coordinated Submarine/Task Group Operations Manual (NWP 3-21.0 [Rev A]) and the ASW Commander’s Manual (NWP 3-21.1).

¹⁵ Gene Myers, “Concepts to Future Doctrine,” A Common Perspective, (April 2002), 6.

¹⁶ *Ibid.*, 6.

¹⁷ J. Benedict, “ASW Paradigm / Changing Paradigm for ASW – The Threat is Technology,” June 2002, The Way Ahead in ASW - JHU/APL CD-ROM, Newport, RI: June 2002, ppt-9.

¹⁸ _____, “Concepts to Future Doctrine,” A Common Perspective, (April 2002), 8.

¹⁹ Naval Warfare Development Center, “Fleet Battle Experiment Echo: Asymmetric Urban Threat.” Analysis Report, Naval Warfare Development Center, Newport, RI: 2000.

²⁰ Vern Clark, “Projecting Decisive Joint Capabilities,” U.S. Naval Institute Proceedings, (October 2002), 57.

²¹ John M. Shalikashvili, Joint Vision 2010. (Washington DC: July 1996), 29.

²² Emphasis added by author.

²³ _____, Joint Vision 2010. (Washington DC: July 1996), 9.

²⁴ David C. Gompert, Mind the Gap: Promoting a Transatlantic Revolution in Military Affairs. (Washington DC: National Defense University Press, 1999), 4.

²⁵ Anthony Watts, “Executive Overview,” Janes Underwater Warfare Systems, 17 January 2003, 2.

²⁶ John Morgan, “Anti-Submarine Warfare, A Phoenix for the Future”. Lkd. Anti-Submarine Warfare at “Chinfo News Service Homepage”, <http://www.chinfo.navy.mil/navpalib/cno/n87/usw/autumn98/anti.htm>. [9 May 2003], 5.

²⁷ Tim Sloth Joergensen, “U.S. Navy Operations in Littoral Waters: 2000 and Beyond,” Naval War College Review, Spring 1998, 28.

²⁸ Charles W. Moore, “Sea Basing: Operational Independence for a New Century,” U.S. Naval Institute Proceedings, (January 2003), 85.

²⁹ _____, “Concepts to Future Doctrine,” A Common Perspective, (April 2002), 49.

³⁰ John F. Morton, “Still a Priority: Interview of VADM William A. Owens USN,” U.S. Naval Institute Proceedings, (March 1993), 124.

³¹ _____, “Naval Transformation Roadmap, Power and Access...From the Sea, Sea Strike – Sea Shield – Sea Basing.” JMO Course Selected Reading, U.S. Naval War College, Newport, RI, 19.

³² Ibid., 21.

³³ _____, “U.S. Navy Operations in Littoral Waters: 2000 and Beyond,” Naval War College Review, Spring 1998, 21.

³⁴ Milan N. Vego, Major Operations in the Littoral. U.S. Naval War College, Newport, RI: September 2002, 36.

³⁵ _____, “U.S. Navy Operations in Littoral Waters: 2000 and Beyond,” Naval War College Review, Spring 1998, 24.

³⁶ Joseph Lodmell, “It Only Takes One,” U.S. Naval Institute Proceedings, (December 1996), 30.

³⁷ An address to the U.S. Naval Warfare College, 18 April 2003.

³⁸ U.S. Air Force Chief of Staff, Countersea Operations (Air Force Doctrine Document 2-1.4). (Washington DC: June 1999), 14.

³⁹ David M. Goodrich, “Land-Based Airpower and Littoral Warfare: An Old Refrain in a New Setting?” JMO Course Selected Reading, U.S. Naval War College, Newport, RI, 13.

⁴⁰ Jeremy Stocker, “Nonintervention: Limited Operations in the Littoral Environment,” Naval War College Review, Autumn 1998, 45.

⁴¹ _____, Major Operations in the Littoral. U.S. Naval War College, Newport, RI: September 2002, 8.

⁴² James Dao, “War Plan Drew U.S. Commandos from Shadows,” New York Times, 26 April 2003, sec. 1, p. 1.

⁴³ _____, “Network-Centric ASW,” Naval Forces, Volume 3 1999, 50.

⁴⁴ _____, Major Operations in the Littoral. U.S. Naval War College, Newport, RI: September 2002, 2.

⁴⁵ _____,From the Sea. (Washington DC: September 1992), 5.

⁴⁶ Roger M. Jaroch, “Supporting Land Warfare,” U.S. Naval Institute Proceedings, (November 1988), 55.

⁴⁷ Carl E. Mundy, “Thunder and Lightning Joint Littoral Warfare,” Joint Forces Quarterly, (Spring 1994), 50.

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